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ABSTRACT

Described here are efforts to modify instructional procedures in a spatial organization course given in 1971, and the roles of the professor, course monitor (author), and students in this experiment. The objectives of the modification were: a) to improve methods for determining student learning; b) to determine the relationship between student achievement and student characteristics; and c) to use this initial information as a factor in determining the content and format of the course. A precourse questionnaire was administered, and on the basis of this information it was decided to emphasize urban situations where possible, and minimize use of mathematics. At mid-course an ungraded test was given, and student reaction to the course elicited. Bloom's taxonomy was used as an aid in constructing the mid-course test. On the basis of this information and discussions: pacing of the course was revised; more class discussions were held; lectures clarifying various theoretical positions were inserted; and outlines of the student-originated proposals for term papers were distributed. At the end of the course, students were given an exam, the College Course and Teaching Evaluation Form, and a supplementary questionnaire. The experiment certainly had value for the professor and course monitor, and undoubtedly for the students, although value for the students was more difficult to assess. (Author/JLB)

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ON MONITORING A COLLEGE COURSE

by

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During the Autumn Quarter of 1971, a special effort was made by three members of the Department of Geography at the University of Chicago to modify the instructional procedures in a course and to monitor the effects of the modification. The idea, originally suggested by Professor William D. Pattison, was used in a new undergraduate course entitled "Spatial Organization" which was being offered by Professor Brian J. L. Berry. As a doctoral student interested in problems of geographic education, I was asked to monitor the course. This report describes briefly the sequence of events in the course and attempts to analyze the significance of what happened.

Initial discussions were held in early June to consider what preparations were necessary. At this time, Professor Berry looked forward (a) to improving on his customary methods for determining what students have learned in a course, and (b) to establish such a relation as there might be between final student achievement and student characteristics discovered at the beginning of a course. A preliminary list of student characteristics was drawn up which included common year grades, test scores (IQ, SAT), and sex as well as certain subjective observations. Since the course dealt with principles of spatial organization, the list also included a few tests for spatial aptitude (e.g., Minnesota Spatial Relations Test).

By early September, the syllabus for the course had been prepared and the major references had been selected. I spent some time perusing these sources to increase my understanding of what was going to be offered. About this time our ideas about ways of getting information changed in favor of a student questionnaire to be put together by the monitor and given at the beginning of the course.

Associated with this change in the means for obtaining information was a change in its intended use. Whereas the initial intent had been to find correlation between final student achievement and student characteristics, the idea began to be accepted that initial information could also be used to make decisions regarding the content and format of the course. This new idea guided the formulation of questions for the pre-course questionnaire.

The final version of the questionnaire, fourteen pages long, consisted of five types of questions. The first part asked for background information such as age, sex, year in college, major, related courses taken previously, etc. The second part asked the students to indicate their attitudes toward certain activities related to the field of geography, for example, "like to travel,"

"enjoy field trips," "find it easy to read maps," etc. The third part was a sizable list of possible course objectives, from which the student was asked choose those that represented outcomes that he or she had had in mind when enrolling for the course. The fourth part was a pre-test in the usual sense of the term, being made up of questions dealing with the content of the course. This was intended to let the professor know what the students already knew about the topics he intended to cover. The final part was composed of "association questions," asking what meanings the students associated with the discipline geography, with the title of the course, with Professor Berry, and with terms that would be used in the course.

To preserve anonymity while allowing cross-tabulation with later questionnaires, we asked the students to identify their papers with self-selected numbers. As monitor, I collected and retained these initial questionnaires. I summarized the responses and presented a class profile to Prof. Berry. On the basis of this information, a number of decisions were made. Since many members of the class indicated an interest in urban problems, Berry made more of a point of relating his lectures to urban situations whenever possible. This did not mean applications in other areas were excluded, but simply that an area of class interest was now known and reference to it could be made whenever possible and appropriate. Another decision made was to keep the use of mathematics in the lectures to a minimum, most of the class having revealed a fairly limited proficiency in mathematics. This was a major decision since the topic of spatial orgainzation lends itself to mathematical treatment very readily. Later on occasion, Berry demonstrated how mathematics could be used, but it never became a basic mode of presentation in the course. Discussion of the class profile by the professor and the monitor was helpful in other ways as well, but this additional assistance extended beyond course modification, for the most part.

In addition to preparing and summarizing the pre-course questionnaire, attended the lectures regularly and held periodic conferences with Berry to tify and clarify the general objectives of the course. One result of these ferences was a decision by Berry to prepare a running summary of what he considered to be the important points of his lectures together with supplementary references, for distribution to the students.

It was during these discussions that I introduced Benjamin Bloom's taxon of educational objectives as a guide to the formulation of objectives for th

course. Berry found this scheme quite satisfying as a way of ordering his own thoughts concerning course purposes. It was decided to try to use it in constructing an ungraded mid-course test on content to be used for diagnostic purposes.

At about the same time it began to seem to Berry to be worthwhile to obtain a subjective student reaction to the format and content of the course at the mid-way point. So a questionnaire as well as an exam was drafted. The purpose of the two instruments was to provide information that would allow both the professor and the class members to determine whether the course was meeting their expectations, and if not, why not. Our aim, in developing the instruments, was the same as the purpose behind final exams and the College Course and Teaching Evaluation Form except that, by administering them DURING the course rather than at the end, we were opening up the possibility of significant course alterations.

I prepared, distributed, collected, and summarized the results of the content examination and the reaction questionnaire. In terms of the Bloom scheme for classifying educational objectives, forty percent of the content questions were comprehension questions and the other sixty percent were application questions. Several sources were used to suggest questions for the reaction questionnaires.

To interpret the results and to help determine the appropriate response to them, I held discussions with the class and the professor. In a one-hour discussion with the class, held without the professor being present, the class was informed of the results of the two sets of questions and each was discussed in further detail.

The action taken as a result of these discussions can be summarized as follows. The pacing of the lectures was revised; allowance was made for more class discussion; two lectures clarifying alternative theoretical positions were inserted; and outlines of the student-originated proposals for term papers were duplicated and distributed. These were all changes made by Berry.

The response of the students was less clear. The purpose of the examination was to allow the students an opportunity to assess their learning up to this point and correct any deficiencies. Since the examination copies had been identified only by student number, a listing was posted showing the questions for each student number which the professor felt should be reviewed. No students came to Berry or myself for such a review. This may have been due to time

pressure from other courses, student inertia, an unwillingness to give up anonymity, or to the availability of other sources — such as other class members — for help in reviewing. Berry is of the opinion that fear of loss of anonymity was the primary deterrent. Accordingly, he anticipates a different method of review the next time the course is given -- perhaps an in-class review by the professor or by groups of students.

At the end of the course, the students were given a ten-question take-home examination, the College Course and Teaching Evaluation Form and a supplementary questionnaire. In preparing the final examination, we again wanted to test for the higher level mental skills in the Bloom hierarchy. To do this, we frequently presented new information and situations to which students were asked to apply the concepts discussed in the course. The College Evaluation Forms were identified by the student numbers. These were duplicated and retained for comparison with earlier comments. The supplementary questionnaire included a number of questions from the pre-course questionnaire for pre-course and post-course comparisons. Berry graded the final exams. I summarized the results of the College Evaluation Form and the supplementary questionnaire. The results are being kept for reference when making preparations for next year's offering of the course.

In Retrospect

There are a number of questions which can be asked with the advantage of hindsight. The first of these concerns the characteristics of the professor that allowed him to be interested initially in an effort of this kind and which later allowed him to give such positive support to the venture. Berry has been involved in the planning and evaluation of public policy decision-making for a number of years in the sphere of urban redevelopment. It is my belief that it was this type of basic interest that attracted him to Pattison's original proposal. My surmise is that he saw in it an opportunity to extend the general principles of planning and evaluation to his classroom life. The same interest presummably allowed him to see the possibility and desirability of a mid-course assessment. (The decision to make changes at this point, it should be noted, required a significant degree of flexibility on his part, which his exceptional competence in subject matter permitted him to exercise.) I infer, further, that his prior commitment to planning encouraged him to accept student goals as a legitimate source of criteria in evaluating the course. This he was inclined

to do from the beginning.

In my own role of monitor, I felt I contributed to this venture in three ways. The first was as a liaison between the class members and the professor. This required a certain facility for conducting human relations with candor and tact. The second was as the person creating five of the six testing devices used in the course.[1] This was my first experience in constructing testing instruments for college courses. Although I encountered no serious problems, there were several areas in which my performance could have been improved. For a pre-course questionnaire, we now have a better idea of what information is and is not useful; for a content questionnaire, we need more efficient questions and a greater variety of question types. My third contribution was made through a selection of ideas from the literature of education to help us interpret and draw implications from the information we were getting. The primary example of such importation was my introduction of the Bloom scheme to Berry. Another example was my fostering of the belief that students should take an active role in their own education. This principleprovided the impetus for the mid-course student reaction questionnaire as well as for several specific questions on it.

The students were asked to contribute to the course in a number of ways. At the beginning, they were asked to make explicit their purposes in taking the course; at the mid-point they were asked to evaluate the course and to assess their own level of achievement. The pre-course questionnaire required a minimum of effort. The mid-course reaction questionnaires were more demanding and my impression was that the students gave it a considerable amount of time and thought. Their comments were perceptive and to the point. As mentioned earlier, we are unsure what actions if any were taken by them in response to the mid-course content examination.

The preceding paragraphs have reviewed the roles of the three principal agents in contributing to this course experiment. Some comments can be made as well about its value for each of these agents.

The professor benefited mainly by getting advance information and feedback on student capacities and interests. Looking back, Berry has drawn an analogy between the pre-course questionnaire and marketing research. The information we were getting allowed us to tailor our product to the demands of the market.

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[1]The sixth was the College Course and Teaching Evaluation Form.

And, to extend the analogy to the rest of the course, we were also attempting via various "sales mechanisms" to alter the character of the market.

One might ask whether Berry's decisions on course design were significantly different from what they would have been otherwise. In fact, the results of the pre-course questionnaire tended to confirm much of what Berry had already guessed about the class members. But it is Berry's feeling that having such a confirmation allowed him to make a more positive response. The feedback from the mid-course questionnaires, however, led to several changes that had NOT previously been contemplated. Berry anticipates that the major effect of this year's experience on next year's offering of the course will be the expenditure of more time at the beginning on an exposition of the syllabus, during which he will show the sequence of ideas to be explored and the timing of his expectations. Once the course has begun, an idea of student expectations will be developed and integrated as appropriate into the syllabus. Such efforts are already evident in a graduate course currently being taught by Berry.

Value for the students is more difficult to assess. They did receive a course more in line with their stated preferences, both in terms of content and format. They were given an ungraded evaluation that informed them of the professor's expectations prior to the graded final. In an attempt to discover whether these and other procedures resulted in more perceived learning and/or greater interest, an item was added to the questionnaire at the end of the course. It listed the changes that had been made in the course as a result of student inputs and asked whether these had "significantly helped (or hindered) you to master and/or enjoy the subject matter of the course." For some yet unknown reason, most of the returned questionnaires answered all of the questions but this one. The student who did answer it gave a very positive reply. The comments of the students on the College Course and Teaching Evaluation Form almost uniformly rated the course as interesting and worthwhile, even though they did not indicate the specific effect of the special procedures we had used. One student did comment that the intermittant course evaluation helped crystallize his own thinking about what he hoped to get out of the course.

The final examination, of course, provided a more objective assessment of the class's learning. However, since this was a new course, there were no levels of achievement from former years that could be used for comparison.

In summarizing the significance of this experiment, I would have to emphasize changes in the designers of the course more than changes in the course

itself or even in the students. Having started with the purpose of improving our evaluation of student learning and predicting the conditions necessary for success, we were gradually drawn into the problem of defining and measuring success. The first expression of this shift was a willingness to solicit student definitions of success, i.e., their statements of purpose in taking the course. A further advance was made with the adoption of Bloom's hierarchical ordering of learning. This in turn led to the recognition that, if students were to become more competent in the higher order cognitive skills required for dealing with the problems and questions of this -- or any other -- course, they would have to do something besides mere listening and reading. Even a term paper was seen to be of limited value in this regard. After all, the student creates it on his own and seldom receives much insight from the professor about different ways it might be done or how to evaluate it himself, until after it has been completed.

During the last half of the course, the professor looked for ways to provide opportunities for guided student activity. One result was the development and circulation of synopses of proposed term papers. This procedure called upon the student to create something relatively short in length, allowed Berry to comment on it, and gave each student a chance to see what the others were doing. This added a learner-learner interaction to the dominant professor-learner exchanges. I anticipate that next year's course will offer more opportunities for applied and analytic exercises as well as for student-student interaction. Another change was the professor's feeling that he not only needed to clarify his own expectations for the course, but that he also should take stronger measures to communicate these expectations to the students. Hence the handout sheets outlining major themes and providing references for further detail and explanation.

Also deserving mention was a heightened appreciation of the need for and difficulty of constructing effective yet efficient testing devices. The questionnaires worked reasonably well. The two content examinations were more systematically constructed than many examinations are, but they were still too time-consuming and therefore limited in the range of behaviors that could be tested.

To conclude, I am pleased to report Professor Berry's belief that great benefits accrued to both himself and the students as a result of having an independent person available to monitor, evaluate, and stimulate dialogue. By